DOCUMENT RESUME

ED 247 839 HE 017 522

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TITLE Toward the Development of a Model of College Withdrawal for Disadvantaged Students.
PUB DATE Apr 84
NOTE 27p.; Paper presented at the Annual Meeting of the American Educational Research Association (68th, New Orleans, LA, April 23-27, 1984).
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Persistence; *College Freshmen; Commuting Students; *Disadvantaged; Higher Education; Models; *Predictive Measurement; Predictor Variables; *Student Attrition; Urban Universities; *Withdrawal (Education)
IDENTIFIERS *City University of New York

ABSTRACT

The first phase of a study to predict retention and withdrawal among disadvantaged students at an urban commuter institution is described. Variable selection for the study was guided by Tinto's (1975) and Bean's (1982) models. Pilot testing was undertaken to estimate some psychometric characteristics of Pascarella and Terenzini's institutional integration scales (that were developed to operationalize Tinto's model) for these students. Longitudinal tracking was undertaken with freshmen enrolled in a developmental studies program at the City University of New York. Pilot testing appears to suggest the factorial validity of the institutional integration scales for this group of students. The results revealed suspected reading comprehension problems and a possible halo effect, but when several items were revised and retested, the scales showed improved characteristics. Appended materials include a diagram of Tinto's conceptual schema for college withdrawal; a diagram of Bean's synthetic causal model of student attrition; a list of background, organizational, environmental, and outcome/attitudinal variables; and the Pascarella/Terenzini Institutional Integration Scales, modified versions. (SW)

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ED247839

Toward the Development of a Model of College Withdrawal for Disadvantaged Students

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Paper for presentation at the American Educational Research Association annual meeting, New Orleans, April, 1984.

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Abstract

This paper describes the first phase of a study of retention and withdrawal among disadvantaged students at an urban commuter institution. Variable selection for the study was guided by Tinto's (1975) and Bean's (1982) models. The study will test predictive utility for this group of students, and then determine what fine tuning can be undertaken if improvement is needed. Pilot tests are reported estimating some psychometric characteristics of Pascarella and Terenzini's institutional integration scales (which were developed to operationalize Tinto's model) for these students. The results revealed suspected reading comprehension problems and a possible halo effect, but when several items were revised and retested, the scales showed improved characteristics.

Toward the Development of a Model of College Withdrawal for Disadvantaged Students

In his original paper, Tinto (1975) suggested that future research should examine questions concerning dropout among individuals of different racial backgrounds as well as dropout from urban institutions of higher education. He reasoned that the difference in attainment patterns among individuals of different ethnicity and social status backgrounds are such as to require considerable fine tuning of the model and special sensitivity in measurement of its constructs to understand the process within various groups.

After nearly a decade had passed, when he assessed the advances and limitations of work in this field, Tinto (1982) pointed out that dropout among disadvantaged students still had not been adequately addressed. It is toward this end that the current study takes a step by seeking to discover what must be done to apply such a model to disadvantaged urban commuter students.

Tinto's model (Figure 1) has been generally empirically confirmed, so the overall strategy here is to begin with this model. However, Tinto's theoretical conception is longitudinal and complex, and therefore it continues to evolve and to be fine tuned when applied to different institutions and groups of students. It is very difficult to obtain an operationalization that exactly mirrors such

a complex model, and variations among different researchers can be observed, such as between Munroe's (1981) study and the series of studies by Pascarella and his colleagues. Bean (1982) discussed issues facing researchers when choosing a model for a specific situation, and included a list of variables classified for use in a general synthetic model. Thus, it seems possible for different observable variables to be selected while remaining true to the theory. Indeed, the model itself may be modified as it is applied to different institutions and groups of students.

This has been true in the case of urban commuter institutions. Pascarella and his colleagues (Pascarella, Duby, Miller, & Rasher, 1981) have tested the model in this situation, and have suggested (Pascarella, Duby, & Iverson, 1983) a reconceptualization that includes modifying several expected paths of influence for commuting (though not disadvantaged) students.

Pascarella et al's work in the commuter institution has clearly shown that integrative factors appear to play less of a role than in residential settings and that the importance of student background variables appears increased. They reasoned, following Chickering (1969), that compared with students at residential schools, commuting students spend considerably less time on campus and have fewer opportunities for informal interaction with faculty and peers. This would tend to reduce the influence of the institution

and increase the importance of individual backgrounds.

Given the importance of individual background factors for urban commuter students, it seems particularly important to develop explanations of attrition for urban students with disadvantaged backgrounds. It is not enough to state that the disadvantaged appear to be at risk, for if this group is to be well served, more attention will have to be focused on identification of factors influential on attrition within groups of disadvantaged students.

The present phase of the work described here will apply a model drawn from Tinto's, Pascarella's, and Bean's thinking. It will present results from two pilot tests designed to provide some preliminary indications of the factorial validity of Pascarella and Terenzini's (1980) institutional integration scales among this type of student, and will discuss some special problems measuring various constructs within this group. The model is being tested during the present school year with a group of freshmen and, with persistence or dropout at the begining of the next year as the criterion variable, will observe the model's utility. Subsequently it can be determined what fine tuning needs to be done to improve its efficiency, and I hope to be here next year to report the results to you.

Method

Subjects. The research described here is based in a senior

college within the City University of New York (CUNY), an urban commuter institution. The group of students in focus is that participating in the Search for Education, Elevation, and Knowledge (SEEK) program, which was established within the senior colleges of CUNY in the late 1960's to provide higher educational opportunity to disadvantaged youths whose high school performance would otherwise preclude admission to a four-year college. The program serves primarily minority students. The vast majority of SEEK students require remedial instruction in reading, writing, and/or mathematics. In addition to this instruction, SEEK students are given supplementary stipends, academic and personal counseling, and tutoring. Despite these supportive services, the attrition rate among these students is high.

Definition of attrition. The main portion of the study is being conducted to longitudinally track the entering class of Fall 1983, and the first major outcome point will be persistence or dropout at the begining of the Fall 1984 semester.

Clearly, academic dismissals constitute an important proportion of all program withdrawals, and these will be closely examined in this study. Additionally, numerous students drop out without being dismissed. It is not clear whether these may be voluntary or involuntary withdrawals under the particular circumstances. Therefore, a definition of "dropout syndrome" developed by Bean (1983) is being added to enhance understanding of this process. Bean (1983)

defined "dropout syndrome" as a "conscious, openly discussed intention to leave an institution coupled with actual attrition" (p. 2). The use of dropout syndrome as a criterion variable addresses the question of voluntary versus involuntary attrition. According to Bean (1983), students who leave without intending to (e.g. for reasons of health, family crisis, etc.) do not represent failures of the student or the college, and can be accurately specified after the fact, but not predicted. Students in this category would probably be more likely to return to school than drop out permanently. Therefore, two sets of data analyses will be conducted, with the first considering all withdrawals as one group and the second differentiating among academic dismissals, voluntary withdrawal (Bean's dropout syndrome), and involuntary withdrawals.

Eventually, as time and the undergraduate careers of these students progress, it will be possible to conduct additional followup studies of their records of achievement and retention. At various time points over the lifetime of the study, members of the original sample who have dropped out of school (or, perhaps, dropped out and returned) can be compared to their nondropout peers on the variables for which information is available, and perhaps on followup questionnaires. Ultimately, it is hoped that the study can follow this cohort through to graduation, although to be valid this might take 6 years or more.

Model. Variable selection was guided by an initial desire to be able to replicate Pascarella's work in urban commuter institutions with this special subgroup, and specifies variables paralleling that work. In a schema similar to Tinto's, Bean (1982) presented a general synthetic model (Figure 2) identifying background, environment, objective interaction with the organization, outcomes and attitudes, intent, and eventual dropout as central constructs. Tinto (1982) observed that his model did not do the best possible job of representing the continuing influence of finances upon persistence. Bean's model appears to address environmental influences (defined as those that are outside the control of the institution), including finances, in a more direct manner than Tinto's. Considering the potential importance of finances for disadvantaged students, Bean's model was included as an additional guide in selecting and presenting the variables to be collected in the study (see Table 1).

Pilot testing. Two pilot testings were conducted using continuing SEEK students (who were ineligible for the main portion of the study). These were samples of 130 and 412 students drawn during the Summer and Fall of 1983, respectively. Both groups of students responded to Pascarella and Terenzini's (1980) institutional integration scales, and the data analysis examined the five factorially derived subscales to provide a preliminary estimate of their factorial validity for this group of students.

Distributions of responses to all items and item-subscale correlations were examined, and coefficient alpha and the average inter-item correlation for each subscale were calculated. To further study internal consistency, two additional approaches were employed: the average inter-item correlations within each subscale were contrasted with the average correlations of items across subscales, and the number of items correlating higher with their subscale of membership (corrected for autocorrelation) than with any other scale was contrasted with the number of items correlating higher with a scale other than that of membership. Finally, the scale intercorrelations were examined.

The item analyses of the first set of data revealed a few measurement problems, and several items were revised for the subsequent data collection.

Results

Measurement problems. Three group-specific measurement problems can be described. Two are unavoidable structural problems arising from the nature of the group of students, and the other cropped up in the first pilot test.

First, criteria for program elibility include two important background variables. To qualify as disadvantaged, students must fall below mandated levels of high school performance and socioeconomic status. The selection criteria force a restriction in range on these two variables, resulting in elimination of potential variability that might be useful

in a correlational study. However, there remains real variability in the financial press upon our students, so they are evaluated in the study by asking about the possibility of financial problems causing withdrawal, need for a part time job, certainty of funds to continue and concern about finances. Furthermore, this is assessed at entry and near the end of the year to capture the continuing influence of finances upon persistence. Nevertheless, no classical measure of SES is included. An array of variables pertinent to academic entry factors will be collected (see Table 1), in an attempt to capture the existing variability in academic readiness for college.

Second, the variable of college grade point average, which probably appears in every study on the subject of retention and attrition, is not completely meaningful for students who are taking remedial basic skills courses on a mastery/nonmastery basis rather than for letter grades, as are many SEEK students. Thus GPA has to be supplemented by an index constructed to consider the proportion of grade-bearing and remedial (mastery) courses attempted, and the proportion of remedial courses successfully completed.

Third, it is not surprising when studying underprepared students that reading comprehension problems might crop up in the pilot test, as they did. Some words in the original scales appeared to be miscomprehended. For example, items containing the word, "interactions" showed inconsistency in the item analysis. The word "interactions" was replaced

by "contacts" for the second pilot test and this problem appeared solved. More serious was a tendency of students to respond inappropriately to negatively worded items. Almost all of these items (when scored reversed) showed item-subscale correlations that were similar in magnitude to the general levels within the subscales, only with negative signs. Although this might have been indicative of a halo effect, it might also have suggested that students were not picking up the meaning of the negative wording. Follow-up conversations with several students confirmed that the problem was one of comprehension. Eliminating negative wording for some of the items might subject the scales to bias from halo effects. Recognizing this limitation, because so many items were involved and their elimination would emasculate the scales, the negative items were reworded. The performance of these items appeared improved in the second pilot test, although the apparently more consistent correlations might have been due in part to the larger sample size. In all, 14 out of 30 original items needed to be revised due to one or both of these problems. The revised subscales are provided in Table 2.

Internal consistency. Table 3 shows the statistics calculated to reflect internal consistency for both data collections. The alpha coefficients were generally higher for the second set of data (ranging from .72 to .80) than for the first (ranging from .62 to .72). This improvement might be traced to the revision of items that were found to be troublesome in the first data collection. Items with

negative item-subscale correlations were eliminated when calculating alpha coefficients for the first data set; there were no such items in the second.

In every case the average within-scale correlations were higher than the average across-scale correlations. The medians of these averages were .28 within, .15 across for the first test, and .40 within, .24 across for the second.

In both tests the vast majority of items had their highest correlation with their own subscale (70% and 90%, respectively).

In sum, all three approaches to internal consistency yielded similar interpretations. The level was generally acceptable, and was improved in the second data collection. This tends to support the factorial validity of these scales for this group of students.

Scale intercorrelations. These ranged from .14 to .55 for the first data collection and from .33 to .68 for the second (see Table 4). When compared with the reliability coefficients, these do not appear to be alarmingly high. When corrected for attenuation, the highest of these was .86. The higher intercorrelations for the second test appear to mirror the increased reliabilities, implying consistent relationships among the underlying subdomains tapped by the instrument. All this adds up to suggest that the subscales tap discrete yet interrelated aspects of institutional integration.

Discussion

The data analysis for the main portion of the study will initially attempt to replicate Pascarella's work with Tinto's model, and will also analyze data analogous to Bean's model. Any model is a representation that necessitates some smoothing over of real events. If attrition studies should lead to retention programs (Green, 1983) it is hoped that the data selected according to these conceptions can lead to ameliorative action in the form of programs that might address factors identified to be influential and amenable to change. These are most likely to come at the interaction rather than the background level, since the program selection factors are based on socio-political factors and are geared to admit students who would traditionally not be regarded as likely to succeed.

Bean's construct of intention to withdraw seems particularly promising in regard to potential action. It is expected to be the single best predictor of attrition, as found by Bean (1983) and Pascarella et al. (1983). Assessment of this construct might identify students actively considering withdrawing. Perhaps this can be used as the basis for an early warning system whereby students with expressed intentions to leave can be singled out for special attention and tracking.

The pilot tests appear to consistently suggest the factorial validity of the scales for this group of students.

Revision of several items following the first data collection appears to have increased internal consistency. However, the scales might be subject to halo effects since they no longer contain any negatively worded items. This was a trade off made to increase reading comprehension among an underprepared group.

Before discarding a distinguished body of work in search of a different attainment pattern for disadvantaged students, this research takes the approach of first testing the models that have been useful among traditional student groups. While the data are encouraging, the true test of these variables will be in their predictive utility in the main portion of the study, which is currently in progress. Background questionnaires were administered in the Fall of 1983 and were completed by 437 students, or 74.8% of the entering Freshman class. Since cumulative respondent mortality is a concern in longitudinal studies, the exceptionally high initial response rate indicates good prospects for successful completion of the first year of the study. Records have been kept of student attendance and contacts with program support services, such as tutoring and counseling. Followup questionnaires regarding their college experiences are currently being readied for distribution near the end of the Spring 1984 semester. The information obtained will be maintained in a database that can be used as a basis for following and continuing to study

the achievement and retention patterns of SEEK students at Hunter College in subsequent years.

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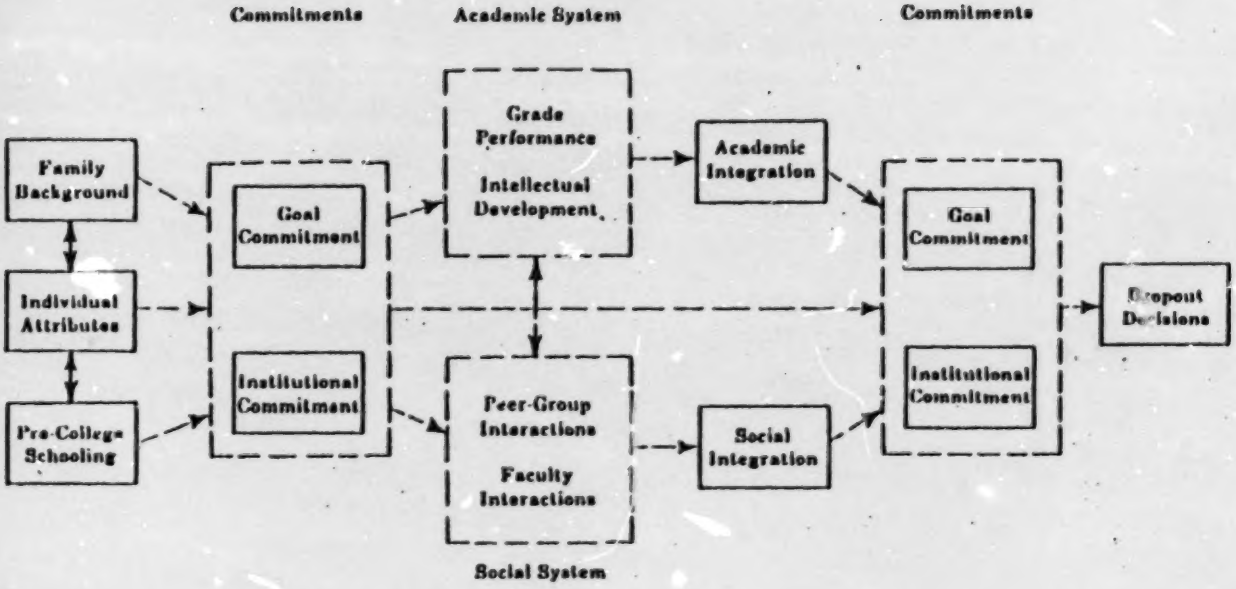

Figure 1. A conceptual schema for dropout from college (Tinto, 1975, p. 95)

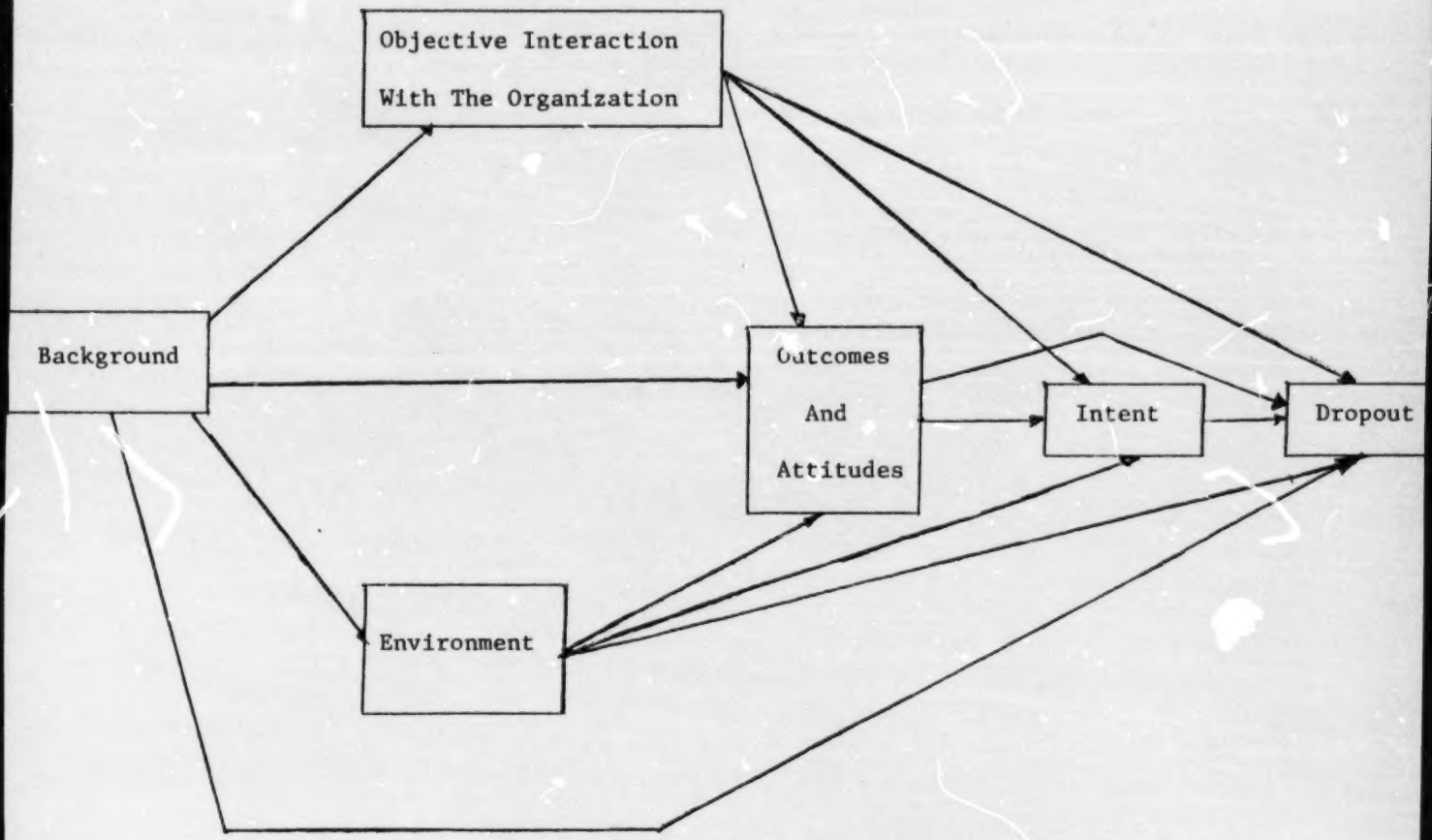

Figure 2. A synthetic causal model of student attrition (Bean, 1982, p.26)

Table 1

List of Variables to Be Collected

Source[a]	Variable
BACKGROUND	
E	Sex
E	Age
E	Ethnicity
E	Parental education
A	High school achievement
P	Placement scores
A	Number and type of high school academic units
E	Employment plans
E	Intended major
E	Major and career plans certainty
E	Degree aspiration
E	Termination/completion plans
E	Familial aspirations for college
E	Utility of college education
E	Ability to communicate in English
E	Academic self-confidence
E	Perceived preparation
E	Commitment to goal of college graduation
E	Commitment to Hunter College
E	Study habits and attitudes in high school
E	Concern about financing education
E	Expressed need for counseling
ORGANIZATIONAL	
S	Informal contact with faculty
T	Tutoring utilization
C	Counseling utilization
C	Attendance/absenteeism
C	Academic probation
G	Grades/course performance
S	Peer group interaction
ENVIRONMENTAL	
S	Family responsibilities
S	Difficulty of financing school
S	Likelihood of marrying
S	Opportunity to transfer

Table 1 (Cont'd.)

OUTCOME AND ATTITUDINAL	
S	Satisfaction
S	Social integration/peer group relations
S	Perceived faculty concern for students and teaching
S	Commitment to college and graduation
S	Extracurricular involvement
S	Congruence between expectation and reality
S	Academic integration
S	Institutional fit
S	Intent to withdraw
F	Academic dismissal
F	Persistence/withdrawal

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[a]Sources of Data:

A - Allocation report.
C - Departmental counseling records
E - Entering (Fall 1983) survey
F - Following fall survey (1984)
G - Grade reports
P - Placement reports
S - Spring 1984 survey
T - Department tutoring records

Table 2

Modified Pascarella/Terenzini Institutional Integration Scales

Scale 1: Peer Group Interactions

Since coming to this college I have developed close personal relationships with other students

The student friendships I have developed at this university have been personally satisfying

[a]My personal relationships with other students have had a positive influence on my personal growth, attitudes, and values

[a]My personal relationships with other students have had a positive influence on my intellectual growth and interest in ideas

It has been difficult for me to meet and make friends with other students

[a]Many of the students I know would be willing to listen to me and help me if I had a personal problem

Most students at this college have values and attitudes different from my own

Scale 2: Interactions with Faculty

[a]My nonclassroom contacts with faculty have had a positive influence on my personal growth, values, and attitudes

[a]My nonclassroom contacts with faculty have had a positive influence on my intellectual growth and interest in ideas

[a]My nonclassroom contacts with faculty have had a positive influence on my career goals and aspirations

Since coming to this college I have developed a close, personal relationship with at least one faculty member

[a]I am satisfied with the opportunities to meet informally with faculty members

Scale 3: Faculty Concern for Student Development and Teaching

[a]The faculty members I have had contact with are generally interested in students

[a]The faculty members I have had contact with are generally outstanding or superior teachers

Table 2 (Cont'd.)

[a]The faculty members I have has contact with are willing to spend time outside class to discuss issues of interest and importance to students

Most of the faculty I have had contact with are interested in helping students grow in more than just academic areas

Most faculty members I have had contact with are genuinely interested in teaching

Scale 4: Academic and Intellectual Development

I am satisfied with the extent of my intellectual development since enrolling at this college

My academic experience has had a positive influence on my intellectual growth and interest in ideas

I am satisfied with my academic experience at this college

[a]My courses this year have been intellectually stimulating

My interest in ideas and intellectual matters has increased since coming to this college

I am more likely to attend a cultural event (for example, a concert, lecture, or art show) now than I was before coming to this college

I have performed academically as well as I anticipated I would

Scale 5: Institutional and Goal Commitments

It is important for me to graduate from college

I am confident that I made the right decision in choosing to attend this college

It is likely that I will register at this college one year from today

[a]It is important for me to graduate from this college

[a]My college education will be highly useful in getting future employment

[a]My college education will be useful in getting a really good job

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Note. Items scored 5=strongly agree to 1=strongly disagree.

[a]Denotes items that were modified from or added to the Pascarella/ Terenzini instrument, beyond simply changing "university" to "college."

Table

Internal Consistency of Inst

Pilot I (N=130)

Scale	Scale alpha	Average inter-item r[a]	Average r with outside items[b]	N highe with ow scale[c]
Peer group interactions	.66	.28	.11	4
Interactions with faculty	.66	.28	.15	4
Faculty concern for student development and teaching	.62	.25	.15	4
Academic and intellectual development	.72	.30	.18	5
Institutional and goal commitments	.62	.21	.12	5
Totals				22

[a] Average item correlation within scales.

[b] Average item correlation across scales.

[c] Number of items correlating higher with scale of membe

[d] Number of items correlating higher with a scale other

e 3

itutional Integration Scales

Pilot II (N=412)

er wn	N higher with another scale[d]	Scale alpha	Average inter-item r[a]	Average r with outside items[b]	N higher with own scale[c]	N higher with another scale[d]
	1	.76	.40	.27	5	1
	1	.79	.45	.24	4	1
	1	.80	.46	.19	5	0
	1	.77	.34	.21	7	0
	2	.72	.33	.27	5	1
	6				26	3

ership than any other scale (corrected for autocorrelation).

than that of membership (corrected for autocorrelation).

Table 4

Scale Intercorrelations

Scale	1	2	3	4	5
1. Peer group interactions	--	.25	.38	.34	.16
2. Interactions with faculty	.48	--	.47	.55	.18
3. Faculty concern for student development and teaching	.47	.68	--	.52	.14
4. Academic and intellectual development	.42	.55	.56	--	.35
5. Institutional and goal commitments	.33	.42	.47	.52	--

Note. Correlations for Pilot I (N=130) appear above the diagonal.
Correlations for Pilot II (N=412) appear below the diagonal.